



Suitcase Communicator

The equipment pictured is a portable communications system designed to relay messages over long distances by satellite. A joint development of Ames Research Center and General Electric Company, Schenectady, New York, it consists of a collapsible antenna and a computerized transceiver, a terminal for sending and receiving messages. The whole system fits into two Pullman-size suitcases and can be powered from a conventional outlet or a vehicle's battery.

Use of satellite relay permits transmissions in almost any terrain, even in areas where mountains block normal line-of-sight transmission. In initial tests, the relay spacecraft was NASA's ATS-3 direct broadcast satellite; with ATS-3, an operator anywhere in North or South America and most of the Atlantic and Pacific Oceans can communicate with fixed Earth stations in those areas. If a network of compatible satellites were available, the system could be used globally.

The principal use envisioned is communications in disasters and other emergencies where it is necessary to get short but vital messages out of the emergency area. The 1980 eruption of Mount St. Helen's illustrated the need for rapidly deployable long distance communications not dependent on wirelines, because such lines are often destroyed in disasters. Another

application is long range communications between transportation vehicles and their dispatch offices. In a seven-month test concluded last year, drivers of Smith Transfer Corporation cross country trucks exchanged information via satellite with their dispatchers in Staunton, Virginia. The drivers reported excellent communications except on brief occasions where trees or overpasses blocked line-of-sight transmissions. Such a communications system offers advantages to the trucking industry in keeping track of equipment, improving maintenance schedules, avoiding improper routing and reducing theft losses.

The system is alphanumeric, meaning that messages are sent and received in letters and numbers. The operator types a message on a keyboard, then transmits it to the Earth station by punching a single key. Another keystroke enables him to receive messages stored at the Earth station. The terminal can be set up in two minutes. The antenna is unfolded and pointed toward the satellite; the proper direction and elevation are available from a simple chart.

ATS-3 is 17 years old and nearing the end of its useful life, but if enough public service and commercial applications are found, the system could be redesigned to work with other satellites. Mobile Satellite Corporation, King of Prussia, Pennsylvania plans to build and operate such a satellite; the company has filed an application with the Federal Communications Commission for a frequency allocation.